5. (Amended) The method of Claim 4 wherein the thrombin peptide derivative consists of between about 12 and about 23 amino acids.

6. (Amended) The method of Claim 5 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO. 1 (Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val), or a *C*-terminal truncated fragment thereof having at least six amino acids, provided that zero, one, two or three amino acids in the serine esterase conserved sequence differ from the corresponding position of SEQ ID NO 1.

7. (Amended) The method of Claim 5 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO. 1 (Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val), or a *C*-terminal truncated fragment thereof having at least nine amino acids, provided that zero, one or two of the amino acids in the serine esterase conserved region are conservative substitutions of the corresponding amino acid in SEQ ID NO 1.

a1

8. (Amended) The method of Claim 5 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO 2 (Cys-X_1-Gly-Asp-Ser-Gly-Gly-Pro-X_2-Val, wherein X_1 is Glu or Gln and X_2 is Phe, Met, Leu, His or Val), or a *C*-terminus truncated fragment of SEQ ID NO 2, said fragment having at least six amino acids.

11. (Amended) The method of Claim 10 wherein the thrombin peptide derivative consists of the amino acid sequence Ala-Gly-Try-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val- (SEQ ID NO 5), or an *N*-terminal truncated fragment thereof, provided that zero, one, two or three amino acids at positions 1-9 in the thrombin peptide derivative differ from the amino acid at the corresponding position of SEQ ID NO 5.

a2

12. (Amended) The method of Claim 10 wherein the thrombin peptide derivative consists of the amino acid sequence Ala-Gly-Try-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val- (SEQ ID NO 5), or an *N*-terminal truncated fragment thereof, provided that zero, one or two amino acids at positions 1-9 in the

a2 thrombin peptide derivative are conservative substitutions of the amino acid at the corresponding position of SEQ ID NO 5.

14. (Amended) The method of Claim 5, wherein the subject is administered a therapeutically effective amount of a physiologically functional equivalent thrombin derivative peptide of the sequence Ala-Gly-Tyr-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val-$CONH_2$ (SEQ ID NO: 6).

a3

22. (Amended) The pharmaceutical composition of Claim 21 wherein the thrombin receptor agonist is a thrombin peptide derivative comprising a polypeptide represented by the following structural formula or a physiologically functional equivalent thereof:

a4

Asp-Ala-R;

wherein R is a serine esterase conserved sequence.

30. (Amended) The pharmaceutical composition of Claim 22 wherein the thrombin peptide derivative consists of between about 12 and about 23 amino acids.

31. (Amended) The pharmaceutical composition of Claim 30 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO. 1 (Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val), or a *C*-terminal truncated fragment thereof having at least six amino acids, provided that zero, one, two or three amino acids in the serine esterase conserved sequence differ from the corresponding position of SEQ ID NO 1.

a5

32. (Amended) The pharmaceutical composition of Claim 30 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO. 1 (Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val), or a *C*-terminal truncated fragment thereof having at least nine amino acids, provided that zero, one or two of the amino acids in the serine esterase conserved sequence are conservative substitutions of the corresponding amino acid in SEQ ID NO 1.

a5

33. (Amended) The pharmaceutical composition of Claim 30 wherein the serine esterase conserved sequence consists of the amino acid sequence of SEQ ID NO 2 (Cys-X_1-Gly-Asp-Ser-Gly-Gly-Pro-X_2-Val) , wherein X_1 is Glu or Gln and X_2 is Phe, Met, Leu, His or Val), or a *C*-terminus truncated fragment of SEQ ID NO 2, said fragment having at least six amino acids.

36. (Amended) The pharmaceutical composition of Claim 35 wherein the thrombin peptide derivative consists of the amino acid sequence Ala-Gly-Try-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val- (SEQ ID NO 5), or an *N*-terminal truncated fragment thereof, provided that zero, one, two or three amino acids at positions 1-9 in the thrombin peptide derivative differ from the amino acid at the corresponding position of SEQ ID NO 5.

a6

37. (Amended) The pharmaceutical composition of Claim 35 wherein the thrombin peptide derivative consists of the amino acid sequence Ala-Gly-Try-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val- (SEQ ID NO 5), or an *N*-terminal truncated fragment thereof, provided that zero, one or two amino acids at positions 1-9 in the thrombin peptide derivative are conservative substitutions of the amino acid at the corresponding position of SEQ ID NO 5.

a7

43. (Amended) A method of stimulating bone growth in a subject at a segmental bone gap, a bone void or a non-union fracture, said method comprising the step of administering to the bone gap, bone void or nonunion fracture, a therapeutically effective amount of a peptide having the sequence Ala-Gly-Try-Lys-Pro-Asp-Glu-Gly-Lys-Arg-Gly-Asp-Ala-Cys-Glu-Gly-Asp-Ser-Gly-Gly-Pro-Phe-Val (SEQ ID NO 5).